

Use Attainability Analysis

for

WBID 1265 East Creek

Submitted by
SES Inc.

to

Missouri Department of Natural Resources
Water Protection Program

Date received: November 14, 2007

Field Data Sheets for Recreation Use Stream Surveys

Data Sheet A - Water Body Identification

I. Water Body Information (For water body being surveyed)

Water Body Name (from USGS 7.5' quad): East Creek	
Missouri Water Body Identification (WBID) Number: 1265	
8 digit HUC code: 10290108	County: Cass
Upstream Legal Description (from Table H): T46N R32W Sec 31	
Downstream Legal Description (from Table H): T44N R33W Sec 2	
Number of sites evaluated: 4	
List all site numbers, listed consequently upstream to downstream: 1,2,3,4	

Site Locations Map(s): Attach a map of the entire segment with assessment sites clearly labeled.
Mark any other items that may be of interest.

II. Facility Information (list all permitted discharges to the water body segment)

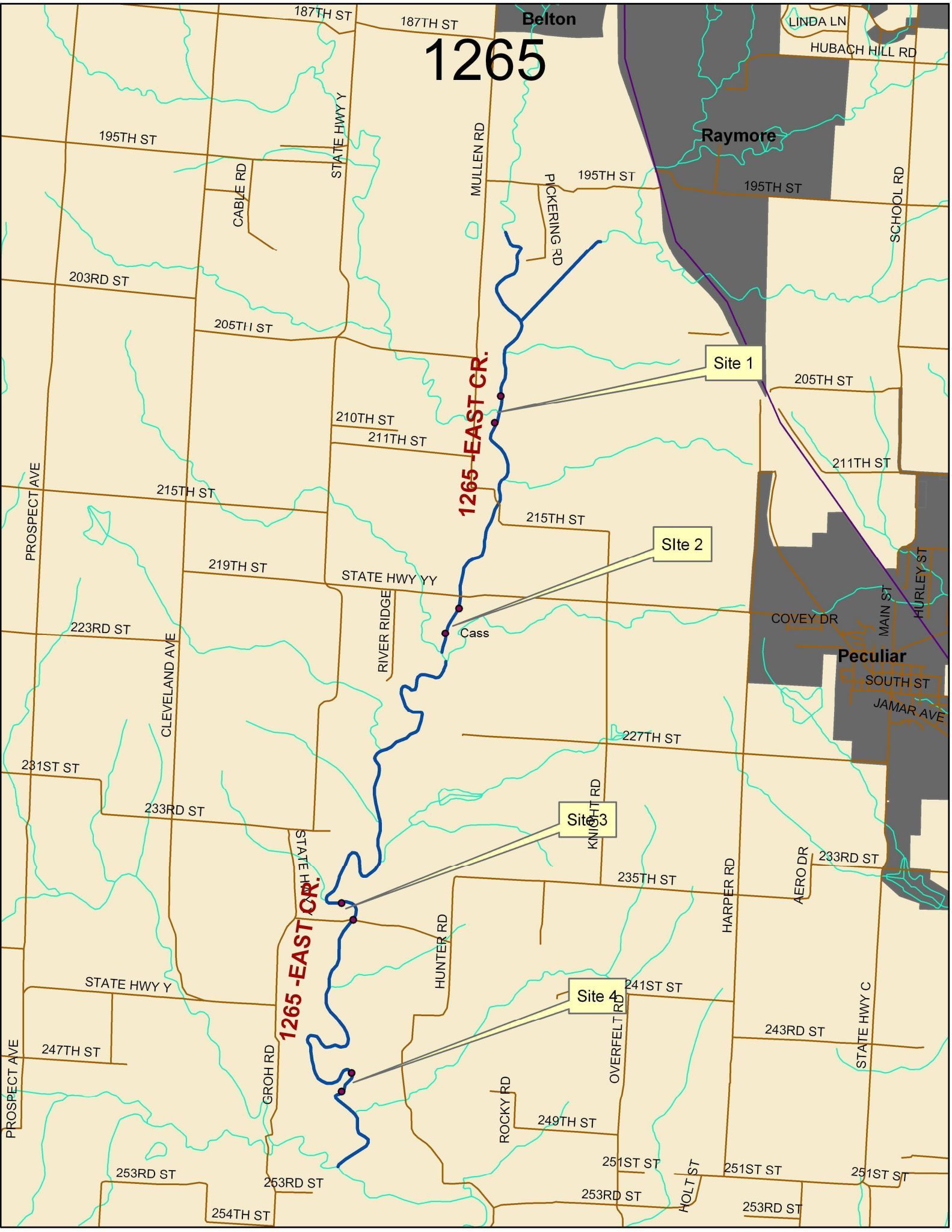
Facility Name(s) and Permit Number(s): Pickering Place, Inc. WWTF MO 0102300
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III. UAA Surveyor (please print legibly)

Name of Surveyor: Aaron Ball	Telephone Number: (913)307-0046
Organization/Employer: SES, Inc.	

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Signed: Aaron Ball **Date:** 11.09.07



WBID # 1265
 Site # 1

Field Data Sheets For Recreational Use Stream Surveys

Data Sheet B-Site Characterization

Date & Time:	10/24/07	11:20	Site Location Description (e.g. road crossing):
Personnel:	Aaron Ball, Drew Dodson		Land Owner Access
Current Weather Conditions:	clear	Facility Name:	Pickering Place, Inc. WWTF
Weather conditions for the past 10 days:	2.85 inches	Permit Number:	MO 0102300
Drought conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>			

Site Location:

Location Coordinates (Universal Transverse Mercator Projection, in Meters)					
Site 01	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy:	Meters	
	0368588	4289809		4.5	
Site 11	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy:	Meters	
	0368518	4289500		7.8	

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
10	Upstream	11	Downstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed:

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water Skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe:				

WBID # 1265
Site # 1

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B- Site Characterization (Continued)

Surrounding Conditions:

<input type="checkbox"/> City/County parks	<input type="checkbox"/> playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National Forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkways
<input type="checkbox"/> Boating accesses	<input checked="" type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep Slopes	<input type="checkbox"/> Other:
Comments: none				

Evidence of Human Use:

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot path/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV/ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock watering
comments/other: none				

Substrate:

% Cobble	% Gravel 70	% Sand	% Silt	% Mud/Clay 30	% Bedrock
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Aquatic Vegetation:

none

Water Characteristics:

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other:
Murky					
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

WBID # 1265
Site # 1

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

none

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: Aaron Ball Date of Survey: 10/24/2007

Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Waterbody ID: <u>1265</u> Site #: <u>1</u> Estimated Channel Incision: <u>2.0</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>0368588</u> UTM Y: <u>4289809</u> +/- <u>4.5</u> (meters) 11 UTM X: <u>0368518</u> UTM Y: <u>4289500</u> +/- <u>7.8</u> (meters) Average Stream Width: <u>7</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Aaron Ball, Drew Dodson</u>														Dissolved Oxygen								
														Date: <u>10/24/07</u> Time: <u>11:20</u> Dissolved Oxygen: <u>11</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>10.4</u> (°C)								
Transect Cross-Section																						
01		02		03		04		05		06		07		08		09		10		11		
Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1	0.5	0.05	0.7	0.30	1.0	0.30	0.7	0.15	0.7	0.15	1.1	0.45	1.2	1.00	1.6	0.40	0.8	0.20	1.0	0.30	1.1	0.45
2	1.0	0.10	1.4	0.30	2.0	0.40	1.4	0.30	1.4	0.20	2.2	0.65	2.4	1.00	3.2	0.50	1.6	0.30	2.0	0.35	2.2	0.60
3	1.5	0.10	2.1	0.25	3.0	0.40	2.1	0.30	2.1	0.30	3.3	0.70	3.6	1.00	4.8	0.45	2.4	0.55	3.0	0.40	3.3	0.65
4	2.0	0.10	2.8	0.20	4.0	0.40	2.8	0.40	2.8	0.30	4.4	0.65	4.8	1.00	6.4	0.60	3.2	0.70	4.0	0.50	4.4	0.75
5	2.5	0.10	3.5	0.10	5.0	0.40	3.5	0.50	3.5	0.40	5.5	0.50	6.0	1.00	8.0	0.90	4.0	0.90	5.0	0.50	5.5	0.90
6	3.0	0.10	4.2	0.10	6.0	0.40	4.2	0.40	4.2	0.40	6.6	0.30	7.2	1.00	9.6	0.70	4.8	1.00	6.0	0.55	6.6	0.85
7	3.5	0.05	4.9	0.10	7.0	0.40	4.9	0.35	4.9	0.40	7.7	0.25	8.4	1.00	11.2	0.60	5.6	1.00	7.0	0.80	7.7	0.75
8	4.0	0.10	5.6	0.05	8.0	0.45	5.6	0.30	5.6	0.30	8.8	0.30	9.6	1.00	12.8	0.80	6.4	0.85	8.0	0.90	8.8	0.80
9	4.5	0.10	6.3	0.05	9.0	0.40	6.3	0.10	6.3	0.20	9.9	0.30	10.8	1.00	14.4	0.75	7.2	0.40	9.0	0.75	9.9	0.60
Right Bank	5.0	0.00	7.0	0.00	10.0	0.00	7.0	0.00	7.0	0.00	11.0	0.00	12.0	0.00	16.0	0.00	8.0	0.00	10.0	0.00	11.0	0.00
Feature Type	riffle		pool		pool		pool		pool		pool		pool		pool		pool		pool		pool	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: Aaron Ball Date: 11.09.07

WBID # 1265
 Site # 2

Field Data Sheets For Recreational Use Stream Surveys

Data Sheet B-Site Characterization

Date & Time:	10/24/07	12:19	Site Location Description (e.g. road crossing):
Personnel:	Aaron Ball, Drew Dodson		Land Owner Access
Current Weather Conditions:	clear	Facility Name:	Pickering Place Inc. WWTF
Weather conditions for the past 10 days:	2.85 inches	Permit Number:	MO 0102300
Drought conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>			

Site Location:

Location Coordinates (Universal Transverse Mercator Projection, In Meters)					
Site 01	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy:	Meters	
	0368113	4287378		5.4	
Site 11	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy:	Meters	
	0367956	4287092		5.1	

Photos:

Photo ID#	Photo Purpose	Photo ID#:	Photo Purpose	Photo ID#:	Photo Purpose
12	Downstream	13	Upstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed:

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water Skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe:				

WBID # 1265
Site # 2

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B- Site Characterization (Continued)

Surrounding Conditions:

<input type="checkbox"/> City/County parks	<input type="checkbox"/> playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National Forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkways
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep Slopes	<input type="checkbox"/> Other:
Comments:				

Evidence of Human Use:

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot path/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV/ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock watering
comments/other: Path down to creek				

Substrate:

% Cobble 50	% Gravel 50	% Sand	% Silt	% Mud/Clay	% Bedrock
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Aquatic Vegetation:

none

Water Characteristics:

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other:
murky					
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

WBID # 1265
Site # 2

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

none

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: Aaron Ball Date of Survey: 10/24/2007

Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Waterbody ID: <u>1265</u> Site #: <u>2</u> Estimated Channel Incision: <u>2.0</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>0368113</u> UTM Y: <u>4287378</u> +/- <u>5.4</u> (meters) 11 UTM X: <u>0367956</u> UTM Y: <u>4287092</u> +/- <u>5.1</u> (meters) Average Stream Width: <u>7</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Aaron Ball, Drew Dodson</u>																Dissolved Oxygen						
Date: <u>10/24/07</u> Time: <u>12:25</u> Dissolved Oxygen: <u>10.3</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>12.2</u> (°C)																						
Transect Cross-Section																						
01		02		03		04		05		06		07		08		09		10		11		
Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1	0.2	0.05	0.9	0.05	0.6	0.15	1.1	0.10	0.7	0.05	0.9	0.40	0.8	0.45	0.3	0.05	0.3	0.10	1.1	0.10	1.0	0.30
2	0.4	0.15	1.8	0.10	1.2	0.40	2.2	0.05	1.4	0.10	1.8	0.75	1.6	0.50	0.6	0.10	0.6	0.10	2.2	0.20	2.0	0.60
3	0.6	0.25	2.7	0.30	1.8	0.50	3.3	0.05	2.1	0.20	2.7	0.70	2.4	0.15	0.9	0.20	0.9	0.20	3.3	0.05	3.0	0.70
4	0.8	0.40	3.6	0.50	2.4	0.75	4.4	0.30	2.8	0.20	3.6	0.60	3.2	0.20	1.2	0.25	1.2	0.25	4.4	0.05	4.0	0.55
5	1.0	0.55	4.5	0.70	3.0	0.80	5.5	0.40	3.5	0.20	4.5	0.60	4.0	0.30	1.5	0.20	1.5	0.30	5.5	0.20	5.0	0.40
6	1.2	0.55	5.4	0.90	3.6	0.95	6.6	0.55	4.2	0.30	5.4	0.65	4.8	0.40	1.8	0.20	1.8	0.30	6.6	0.20	6.0	0.35
7	1.4	0.55	6.3	0.95	4.2	0.70	7.7	0.55	4.9	0.20	6.3	0.70	5.6	0.90	2.1	0.20	2.1	0.30	7.7	0.20	7.0	0.30
8	1.6	0.50	7.2	1.00	4.8	0.30	8.8	0.50	5.6	0.05	7.2	0.75	6.4	1.00	2.4	0.20	2.4	0.25	8.8	0.20	8.0	0.25
9	1.8	0.50	8.1	0.80	5.4	0.15	9.9	0.40	6.3	0.10	8.1	0.20	7.2	1.00	2.7	0.15	2.7	0.10	9.9	0.15	9.0	0.20
Right Bank	2.0	0.00	9.0	0.00	6.0	0.00	11.0	0.00	7.0	0.00	9.0	0.00	8.0	0.00	3.0	0.00	3.0	0.00	11.0	0.00	10.0	0.00
Feature Type	run		pool		pool		pool		pool		pool		pool		riffle		riffle		pool		pool	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: Aaron Ball Date: 11.09.07

WBID # 1265
 Site # 3

Field Data Sheets For Recreational Use Stream Surveys

Data Sheet B-Site Characterization

Date & Time:	10/24/07	15:50	Site Location Description (e.g. road crossing):
Personnel:	Aaron Ball, Drew Dodson		239th St.
Current Weather Conditions:	clear	Facility Name:	Pickering Place, Inc. WWTF
Weather conditions for the past 10 days:	2.85 inches	Permit Number:	MO 0102300
Drought conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>			

Site Location:

Location Coordinates (Universal Transverse Mercator Projection, In Meters)					
Site 01	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy:	Meters	
	0366771	4284010		6.9	
Site 11	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy:	Meters	
	0366905	4283821		8.7	

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
16	Downtown	17	Upstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed:

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water Skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe:				

WBID # 1265
 Site # 3

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B- Site Characterization (Continued)

Surrounding Conditions:

<input type="checkbox"/> City/County parks	<input type="checkbox"/> playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National Forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkways
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep Slopes	<input type="checkbox"/> Other:
Comments: <div align="center">none</div>				

Evidence of Human Use:

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot path/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input checked="" type="checkbox"/> Rope swings
<input type="checkbox"/> RV/ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input checked="" type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock watering
comments/other: <div align="center">none</div>				

Substrate:

% Cobble	% Gravel 40	% Sand	% Silt	% Mud/Clay 60	% Bedrock
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Aquatic Vegetation:

none

Water Characteristics:

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other:
					Murky
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

WBID # 1265
Site # 3

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

none

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: Aaron Ball Date of Survey: 10/24/2007

Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Waterbody ID: <u>1265</u> Site #: <u>3</u> Estimated Channel Incision: <u>4.0</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>0366771</u> UTM Y: <u>4284010</u> +/- <u>6.9</u> (meters) 11 UTM X: <u>0366905</u> UTM Y: <u>4283821</u> +/- <u>8.7</u> (meters) Average Stream Width: <u>7</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Aaron Ball, Drew Dodson</u>	Dissolved Oxygen Date: <u>10/24/07</u> Time: <u>15:52</u> Dissolved Oxygen: <u>10.1</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>12.6</u> (°C)
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Transect Cross-Section

	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Station																						
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.6	0.45	0.8	0.50	0.8	0.50	0.7	0.30	0.8	0.40	0.5	0.20	0.5	0.20	0.6	0.30	0.8	0.30	0.6	0.30	0.7	0.45
2	1.2	0.50	1.6	1.00	1.6	0.90	1.4	0.35	1.6	0.40	1.0	0.50	1.0	0.40	1.2	0.40	1.6	0.30	1.2	0.30	1.4	0.45
3	1.8	1.00	2.4	1.00	2.4	1.00	2.1	0.55	2.4	0.40	1.5	0.85	1.5	0.70	1.8	0.50	2.4	0.25	1.8	0.30	2.1	0.40
4	2.4	1.00	3.2	1.00	3.2	1.00	2.8	0.65	3.2	0.50	2.0	0.85	2.0	0.85	2.4	0.75	3.2	0.30	2.4	0.30	2.8	0.40
5	3.0	1.00	4.0	1.00	4.0	1.00	3.5	1.00	4.0	0.80	2.5	0.90	2.5	0.80	3.0	0.90	4.0	0.45	3.0	0.30	3.5	0.40
6	3.6	0.95	4.8	1.00	4.8	1.00	4.2	1.00	4.8	1.00	3.0	0.70	3.0	0.70	3.6	1.00	4.8	0.50	3.6	0.40	4.2	0.60
7	4.2	0.80	5.6	1.00	5.6	1.00	4.9	1.00	5.6	1.00	3.5	0.50	3.5	0.50	4.2	1.00	5.6	0.60	4.2	0.50	4.9	0.70
8	4.8	0.55	6.4	1.00	6.4	0.80	5.6	1.00	6.4	1.00	4.0	0.45	4.0	0.40	4.8	0.80	6.4	0.70	4.8	0.60	5.6	0.70
9	5.4	0.40	7.2	0.60	7.2	0.60	6.3	0.70	7.2	0.75	4.5	0.20	4.5	0.30	5.4	0.65	7.2	0.60	5.4	0.50	6.3	0.50
Right Bank	6.0	0.00	8.0	0.00	8.0	0.00	7.0	0.00	8.0	0.00	5.0	0.00	5.0	0.00	6.0	0.00	8.0	0.00	6.0	0.00	7.0	0.00
Feature Type	pool		pool		pool		pool		pool		pool		pool		pool		pool		pool		pool	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: Aaron Ball Date: 11.09.07

WBID # 1265
 Site # 4

Field Data Sheets For Recreational Use Stream Surveys

Data Sheet B-Site Characterization

Date & Time:	10/24/07	14:45	Site Location Description (e.g. road crossing):
Personnel:	Aaron Ball, Drew Dodson		Farmer's Access off Hunter Rd.
Current Weather Conditions:	clear	Facility Name:	Pickering Place, Inc. WWTF
Weather conditions for the past 10 days:	2.85 inches	Permit Number:	MO 0102300
Drought conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>			

Site Location:

Location Coordinates (Universal Transverse Mercator Projection, In Meters)					
Site 01	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy:	Meters	
	0366885	4282071		10.2	
Site 11	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy:	Meters	
	0366771	4281859		8.3	

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
14	Downstream	15	Upstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

Uses Observed:

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water Skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe:				

WBID # 1265
Site # 4

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B- Site Characterization (Continued)

Surrounding Conditions:

<input type="checkbox"/> City/County parks	<input type="checkbox"/> playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National Forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkways
<input type="checkbox"/> Boating accesses	<input checked="" type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep Slopes	<input type="checkbox"/> Other:
Comments: none				

Evidence of Human Use:

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot path/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV/ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock watering
comments/other: none				

Substrate:

% Cobble	% Gravel 20	% Sand	% Silt 30	% Mud/Clay 50	% Bedrock
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Aquatic Vegetation:

none

Water Characteristics:

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other:
Murky					
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

WBID # 1265
Site # 4

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B - Site Characterization (continued)

Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

Comments: (Please record any additional comments here.)

none

Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.

Surveyor's Signature: Aaron Ball Date of Survey: 10/24/2007

Organization: SES, Inc. Position: Field Team Leader

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Waterbody ID: <u>1265</u> Site #: <u>4</u> Estimated Channel Incision: <u>4.0</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>0366885</u> UTM Y: <u>4282071</u> +/- <u>8.3</u> (meters) 11 UTM X: <u>0366771</u> UTM Y: <u>4281859</u> +/- <u>10.2</u> (meters) Average Stream Width: <u>5</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Aaron Ball, Drew Dodson</u>																Dissolved Oxygen						
																Date: <u>10/24/07</u> Time: <u>14:47</u> Dissolved Oxygen: <u>10.5</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>12.5</u> (°C)						
Transect Cross-Section																						
Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)	Distance (m)	Depth (m)
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.5	0.30	0.4	0.25	0.5	0.40	0.5	0.35	0.4	0.25	0.5	0.40	0.5	0.30	0.4	0.15	0.3	0.05	0.3	0.05	0.4	0.15
2	1.0	0.40	0.8	0.40	1.0	0.30	1.0	0.70	0.8	0.45	1.0	0.60	1.0	0.45	0.8	0.30	0.6	0.20	0.6	0.10	0.8	0.30
3	1.5	0.50	1.2	0.70	1.5	0.20	1.5	1.00	1.2	0.65	1.5	0.50	1.5	0.60	1.2	0.50	0.9	0.35	0.9	0.10	1.2	0.35
4	2.0	0.65	1.6	0.70	2.0	0.15	2.0	1.00	1.6	0.70	2.0	0.50	2.0	0.65	1.6	0.50	1.2	0.40	1.2	0.25	1.6	0.40
5	2.5	0.60	2.0	0.50	2.5	0.10	2.5	1.00	2.0	0.50	2.5	0.30	2.5	0.60	2.0	0.45	1.5	0.45	1.5	0.35	2.0	0.35
6	3.0	0.40	2.4	0.40	3.0	0.15	3.0	1.00	2.4	0.35	3.0	0.30	3.0	0.40	2.4	0.40	1.8	0.30	1.8	0.30	2.4	0.30
7	3.5	0.25	2.8	0.30	3.5	0.20	3.5	1.00	2.8	0.15	3.5	0.30	3.5	0.40	2.8	0.25	2.1	0.30	2.1	0.30	2.8	0.20
8	4.0	0.20	3.2	0.15	4.0	0.20	4.0	1.00	3.2	0.10	4.0	0.30	4.0	0.20	3.2	0.10	2.4	0.20	2.4	0.20	3.2	0.15
9	4.5	0.10	3.6	0.10	4.5	0.10	4.5	0.80	3.6	0.10	4.5	0.25	4.5	0.10	3.6	0.10	2.7	0.10	2.7	0.10	3.6	0.10
Right Bank	5.0	0.00	4.0	0.00	5.0	0.00	5.0	0.00	4.0	0.00	5.0	0.00	5.0	0.00	4.0	0.00	3.0	0.00	3.0	0.00	4.0	0.00
Feature Type	pool		pool		run		pool		pool		pool		pool		pool		run		riffle		pool	

Notes: Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Signed: Aaron Ball Date: 11.09.07

WBID# 1265



Site# 1 Photo ID# 10, Upstream



Site# 1 Photo ID# 11, Downstream



Site# 2 Photo ID# 12, Downstream



Site# 2 Photo ID# 13, Upstream

WBID# 1265



Site# 3 Photo ID# 16, Downstream



Site# 3 Photo ID# 17, Upstream



Site# 4 Photo ID# 14, Downstream



Site# 4 Photo ID# 15, Upstream